ON THE VALIDITY OF *NEMIPTERUS FURCOSUS* (VALENCIENNES) (NEMIPTERIDAE)

by

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ABSTRACT. - The nemipterid fish *Nemipterus furcosus* (Valenciennes) has been misidentified by most recent authors as *N. peronii* (Valenciennes). *N. furcosus* is here recognised as a valid species, and is redescribed. *N. peronii* is recognised as a senior synonym of *N. tolu* (Valenciennes). Synonyms of *N. furcosus* include *Dentex upeneoides* Bleeker, *D. ovenii* Bleeker, *D. hypselognathus* Bleeker, *D. sundanensis* Bleeker, *Nemipterus worcesteri* Evermann & Seale, *N. robustus* Ogilby and *N. guntheri* Ogilby. *N. furcosus* is widely distributed throughout the tropical West Pacific from southern Japan to north eastern Australia, and in the eastern Indian Ocean including the Gulf of Mannar, Sri Lanka, the Andaman Sea, Strait of Malacca and north western Australia.

RÉSUMÉ. - *Nemipterus furcosus* (Valenciennes), cité par la plupart des auteurs récents sous le nom de *N. peronii* (Valenciennes), est ici reconnu comme une espèce valide et redécrit. *N. peronii* est considéré comme le synonyme senior de *N. tolu* (Valenciennes). La synonymie de *N. furcosus* inclut *Dentex upeneoides* Bleeker, *D. ovenii* Bleeker, *D. hypselognathus* Bleeker, *D. sundanensis* Bleeker, *Nemipterus worcesteri* Evermann & Seale, *N. robustus* Ogilby et *N. guntheri* Ogilby. *N. furcosus* est largement distribué dans le Pacifique ouest tropical du sud du Japon au nord-est de l'Australie, et dans l' Océan Indien est dans le golfe de Mannar, à Sri Lanka, en mer d'Andaman, dans le détroit de Malacca et au nord-ouest de l'Australie.

Key-words. - Nemipteridae, *Nemipterus furcosus*, IS, West Tropical Pacific, Taxonomic validity, Synonymy, Distribution.

Dentex furcosus was described by Valenciennes *in* Cuvier and Valenciennes (1830), based on two specimens collected by M. Raynaud from Trinquemalé (= Trincomalee), Sri Lanka. Günther (1859) referred *Dentex furcosus* to the genus *Synagris* and described specimens from Amboyna (= Ambon), the Louisiade Archipelago and Australia, as *S. furcosus*. Bleeker (1873), however, questioned Günther's identification of *Synagris furcosus*: "M. Gunther rapporte cette espèce au *Dentex furcosus* dont cependant la justesse me semble avoir besoin d'être prouvée". Day (1875-77[1875]) erroneously included *Dentex furcosus* Valenciennes with a question mark as a synonym of *Synagris notatus* Day 1870, and noted that *S. notatus* "appears to be a slight variety of *S. furcosus*, Günther". Day (1888) later referred *S. notatus* to the synonymy of *Synagris taeniopterus* (Valenciennes) [= *Nemipterus hexodon* (Quoy & Gaimard)].

Ogilby (1916) also believed that Günther's (1859) use of the name *Synagris furcosus* was incorrect, and in a key to the species of *Nemipterus* of Queensland, published the replacement name *N. robustus* for Günther's *furcosus*. Ogilby (1918), however, apparently overlooked his earlier replacement name and proposed the name *N. guntheri* for *S. furcosus fide* Günther, arguing that Valenciennes' species "has not since been found in Indian waters, and Day has omitted it from his great work", "the description of its form, as given by the French authors, does not agree

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well with that of Günther", and "in view, therefore, of the failure of Indian naturalists to rediscover the true *D. furcosus*, the question arises as to whether *D. taeniopterus* was not founded on a more carefully preserved specimen of the former fish".

Fowler (1933) used the name *Synagris furcosus* (Valenciennes), and included *Dentex marginatus* Valenciennes, *D. taeniopterus* Valenciennes, *D. notatus* Day, *Nemipterus robustus* Ogilby, and *N. guntheri* Ogilby as synonyms. Munro (1955) also recognised *N. furcosus* (Valenciennes) and included *Synagris notatus* Day as a synonym.

Weber and de Beaufort (1936) examined the types of *Dentex furcosus* Valenciennes and concluded that it was close to *D. sundanensis* Bleeker, but did not include *D. furcosus* Valenciennes in their revision of the Indo-Australian species of *Nemipterus*. However, they referred *Synagris furcosus fide* Fowler to the synonymy of *N. hexodon*, and regarded *furcosus fide* Günther as a synonym of *N. peronii* (Valenciennes). This action was followed also by Herre (1953) and Wongratana (1972), neither of whom included *D. furcosus* Valenciennes in their synonymies of *N. peronii* or *N. hexodon*.

Among recent authors, only Gloerfelt-Tarp and Kailola (1983) and Sainsbury *et al.* (1984) have correctly used the name *N. furcosus* Valenciennes. Most other authors (Fischer and Whitehead, 1974; Masuda *et al.*, 1975, 1984; Kyushin *et al.*, 1982; Tan *et al.*, 1982; Schroeder, 1980; Lee, 1986; Rao and Rao, 1986) have consistently misapplied the name *Nemipterus peronii* to *N. furcosus*, and have treated the true *peronii* under the name *N. tolu* Valenciennes. However, *Nemipterus peronii* is identical with *N. tolu*, and on the basis of page priority is a senior synonym of the latter (Bauchot *et al.*, 1983; Russell, 1986).

Nemipterus furcosus (Valenciennes) is recognised here as a valid species; it is the correct name for the fish previously misidentified as *N. peronii* by most authors. Clarification of the synonymy of *N. furcosus* and a redescription of the species is given below.

MATERIAL AND METHODS

Methods of counting and measuring specimens follow Russell (1986). Lengths of specimens are standard lengths (SL) unless otherwise indicated, and all measurements are in millimetres rounded to the nearest 0.1 mm. Material examined but not measured or counted is indicated by an asterisk (*).

The following abbreviations have been used for institutional depositories: ANSP = Academy of Natural Sciences, Philadelphia; ASIZP = Academia Sinica, Institute of Zoology, Taipei; BMNH = British Museum (Natural History), London; BPBM = Bernice P. Bishop Museum, Honolulu; CAS = California Academy of Sciences, San Francisco; MNHN = Muséum national d'Histoire naturelle, Paris; NTM = Northern Territory Museum, Darwin; PMBC = Phuket Marine Biological Centre, Phuket; RMNH = Rijksmuseum van Natuurlijke Historie, Leiden; QM = Queensland Museum, Brisbane; USNM = United States National Museum, Washington DC.

NEMIPTERUS FURCOSUS (VALENCIENNES, 1830)

(Fig. 1)

Synonyms

Dentex furcosus Valenciennes, *in* Cuvier & Valenciennes 1830: 244 (type locality: Trinquemalé [= Trincomalee], Sri Lanka). *Dentex upeneoides* Bleeker, 1852: 725 (type locality: Klabat Bay, Banka [= Bangka]). *Dentex Ovenii* Bleeker,

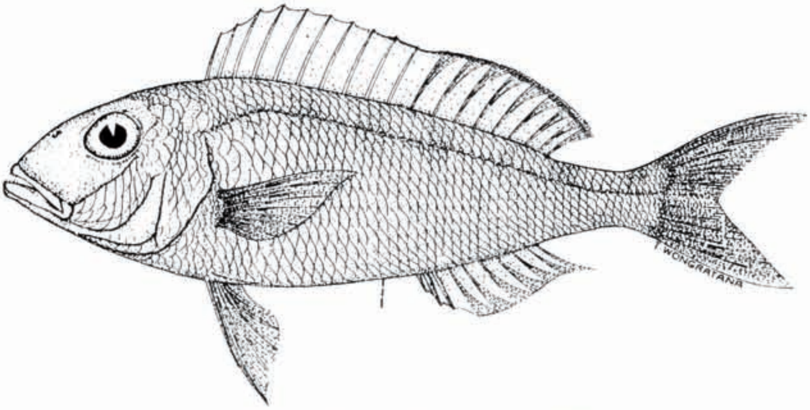

Fig. 1. - *Nemipterus furcosus*, 272 mm SL (after Wongratana, 1972).

1854: 246 (type locality: Macassar, Celebes [= Ujung Pandang, Sulawesi]). *Synagris furcosus*: Günther, 1859: 373. *Synagris ovenii*: Günther, 1859: 375. *Synagris upeneoides*: Günther, 1859: 375. *Dentex hypselognathus* Bleeker 1873: 9 (type locality: Java [= Jawa]; Celebes [= Sulawesi]). *Dentex sundanensis* Bleeker, 1873: 15 (type locality: Java [= Jawa]; Banka [= Bangka]; Biliton [= Belitung]; Celebes [= Sulawesi]). ? *Genyorage rubicauda* Saville-Kent, 1893: 281 and 369 (*nomen nudum* for *Lutianus rubicundus* De Vis ms *fide* Ogilby, 1918). *Nemipterus worcesteri* Evermann & Seale, 1907: 81, fig. 14 (type locality: Bacon, Philippines). *Nemipterus ovenii*: Jordan & Seale, 1907: 21. *Nemipterus upeneoides*: Seale, 1910: 275. *Synagris hypselognathus*: Weber, 1913: 282. *Nemipterus robustus* Ogilby, 1916: 114 (replacement name for *Synagris furcosus* Günther, not *Dentex furcosus* Valenciennes). *Nemipterus guntheri* Ogilby, 1918: 58 (replacement name for *Synagris furcosus* Günther, not *Dentex furcosus* Valenciennes). *Nemipterus furcosus*: Schmidt, 1930: 48. *Synagris worcesteri*: Fowler, 1933: 88. *Synagris hypselognathus*: Fowler, 1933: 96. *Nemipterus hypselognathus*: Herre, 1934: 55. *Nemipterus sundanensis*: Weber & de Beaufort, 1936: 358.

Material examined

Sri Lanka: Trincomalee, MNHN 132 (2: 133-141.4, syntypes of *Dentex furcosus* Valenciennes). India: Tuticorin, BPBM 20581 (3: 177-281)*. Taiwan: Kaohsiung, ASIZP 055862 (224). Philippines: Cavite, CAS SU.9645 (206.5); Sarsogon, Bacon, USNM 55917 (177, holotype of *Nemipterus worcesteri* Evermann & Seale); Leyte, Hinonangan Bay, USNM 145320 (119.3); Palawan, Puerto Princesa, USNM 227083 (145)*; Sulu, Jolo, CAS SU.27051 (3: 130.5-166.4)*. Palau: CAS 48575 (193). Thailand: Phuket, Ko Surin, PMBC unreg. (2: 145-149)*; Gulf of Thailand, CAS 48571 (165.6)*, Bangkok, ANSP 59977 (109.4), Rayong, ANSP 87188 (2: 110.4-113.7)*. Malaysia: Penang, Georgetown market, NTM S.10688-004 (199.5); Malacca, NTM S.12004-002 (176.5); Sabah, Kota Kinabalu, NTM S.10677-017 (197.8); Sarawak, Kuching market, NTM S.10678-005 (144). Singapore: Krankur market, NTM S.10665-003 (2: 120-159)*. Indonesia: Sumatra (= Sumatera), Mentawi Strait, NTM S.11025-001 (136)*, near Sunda Strait, NTM S.11018-001 (136)*; Bangka, Klabat Bay, RMNH 5687 (106.2, holotype of *Dentex upeneoides* Bleeker); Java (= Jawa), Batavia (= Jakarta), RMNH 5697 (3: 125-210, syntypes of *Dentex hypselognathus* Bleeker, 1 specimen from Batavia [= Jakarta], 2 others from Celebes [= Sulawesi]

- Macassar [= Ujung Pandang] and Badjoa [= Bajowe]), RMNH 5700 (120.7, lectotype? of *Dentex sundanensis* Bleeker), S.E. coast of Java (= Jawa), NTM S.11026-001 (2: 135-170)*; Sulawesi, Ujung Padang, NTM S.10661-003 (2: 132-180)*, RMNH 5689 (126.7, holotype ? of *Dentex ovenii* Bleeker); Bali Strait, NTM S.10735-006 (182.6); Lombok, S. E. coast, NTM S.10730-001 (206); Sape Strait, NTM S.10731-001 (173)*; Flores, Maumere, NTM S.12199-003 (155)*; Halmahera, Loleba, USNM 231506 (155); Amboyna (= Ambon), BMNH 1858.4.21: 242 (157.5)*. Australia: 'Australia', BMNH 1851.2.20: 10 (2: 166-180.5)*; N.W. Shelf, Dampier Archipelago, Rosemary I., NTM S.10810-002 (2: 150-158); Arafura Sea, AMS I.21838-005 (220); Gulf of Carpentaria, NTM S.10936-004 (3: 138.5-167.2); Torres Strait, QM I.17334 (6: 96.8-110.6); Somerset, QM I.2580 (159)*; Princess Charlotte Bay, QM I.15328 (196.5); Palm I., QM I.12428 (139.3); Fraser I., QM I.19187 (3: 167.5-224)*.

Diagnosis

Pectoral fin ii,13-15; gill rakers 9-12; body moderately elongate, depth 3.0-3.9 in SL; head length about equal to or a little longer than body depth; diameter of eye about equal to or less than snout length, 0.9-1.6 in snout; lower edge of eye tangential to or above a line from tip of snout to upper pectoral-fin base; suborbital moderately deep, its lower edge more or less straight, least depth 0.9-1.9 in eye diameter; imaginary line extended upward from posterior edge of suborbital reaching dorsal profile at or just behind dorsal-fin origin; pectoral fins moderately long, reaching to or just short of a vertical at vent; pelvic fins moderately long, reaching to or just short of a vertical at vent; caudal fin deeply forked.

Description

Dorsal fin X,9; anal fin III,7; pectoral fin ii,13-15; lateral-line scales 47-51; transverse scale rows 3-4/11½-12½; gill rakers 9-12.

Depth 3.0-3.9 in SL; head 3.0-3.4 in SL, head length about equal to body depth, depth 0.9-1.2 in head; snout moderately long, rounded, 2.4-3.3 in head; eye 2.8-4.0 in head; diameter of eye about equal to or less than snout length, 0.9-1.6 in snout; lower margin of eye tangent to or above a line from tip of snout to upper pectoral-fin base; interorbital width 1.1-1.7 in eye; least depth of suborbital 0.9-1.9 in eye; ventral margin of suborbital more or less straight, its posterior edge slightly rounded or straight; an imaginary line extended upward from posterior edge reaching dorsal profile at about origin of dorsal fin; naked width of preopercle 1.0-1.4 in scaly width; margin of preopercle entire; caudal peduncle depth 1.0-1.6 in peduncle length; dorsal-fin length 1.2-1.9 in SL; fourth through seventh dorsal spines usually longest, 1.3-3.5 times length of first spine; third through fifth dorsal rays usually longest, 0.8-1.1 times length of longest dorsal spine; anal-fin length 4.7-5.8 in SL; first anal spine 1.5-3.2 in second; second anal spine 1.1-2.1 in third; pectoral fins moderately long, reaching to or just short of a vertical at vent, 0.8-1.1 in head; pelvic fins moderately long, reaching to or just short of a vertical at vent, 1.3-1.7 in head; pectoral fins 0.8-1.1 in pelvic fins; caudal fin deeply forked.

Maxilla reaching to below posterior nostril and anterior margin of eye; jaw teeth small, pointed, in narrow tapering bands in both jaws; upper jaw with an outer row of 2-3 pairs of small, recurved canines anteriorly; lower jaw with an outer row of 3-4 pairs of slightly enlarged canines anteriorly; 4-5 pairs of small lateral canines on either side of lower jaw.

Colouration

Colour in life: head and body pale iridescent pink, paling on sides to silvery white below; back with 9 indistinct cross bars, extending to just beneath lateral line; third bar somewhat darker and more distinct, forming a reddish shoulder spot behind origin of lateral line in some specimens; traces of indistinct yellowish stripes along body, one above and several below lateral line; cheeks and opercle silvery, upper jaw rosy; lower jaw silvery; eye rosy; dorsal fin pale rosy, sometimes with yellowish tinge, outer margin darker pink; anal fin bluish white, with row of transparent or faint yellowish spots near base; caudal fin pale rosy with yellow tinge, lower margin of fin white or orange; pelvic fins and axillary scales white; pectoral fins rosy.

Colour in alcohol: uniform brownish.

Remarks

Although his original description is brief, Valenciennes mentioned a number of characters that are diagnostic for the species. These include an elongate body; rather strong canine teeth in both jaws; large (deep) suborbital; caudal fin lobes elongate; and caudal fin red, the lower lobe with an orange border. The two syntypes of *Dentex furcosus* in the Muséum national d'Histoire naturelle in Paris, registered MNHN 132 (Bauchot *et al.*, 1983) were examined: the larger specimen (141.4 mm SL) is here designated as the lectotype of *N. furcosus*.

Bleeker (1873) appears to have been mistaken in his belief that Günther (1859) had misidentified *Synagris furcosus*. Günther's description was based on 7 specimens: four dried or stuffed and three spirit specimens. The three spirit specimens (spec. 'a' - BMNH 1858.4.21:242; spec. 'f', 'g' - BMNH 1851.2.20:10) were examined and are clearly identifiable as *N. furcosus*. Ogilby (1918) also confused the identity of *N. furcosus*, and in his paper proposing the replacement name *N. guntheri* he appended a description of a fish that he identified as *guntheri*. Examination of this specimen (QM I.2580), however, shows it to be identical to *N. furcosus*.

The types of *Dentex hypselognathus* Bleeker, *D. sundanensis* Bleeker, *D. upeneoides* Bleeker, and *D. ovenii* Bleeker were examined and agree well with *N. furcosus*, although in Bleeker's original descriptions and figured specimens of *D. hypselognathus* (Bleeker, 1875-76 [1875]: Vol. 8, Plate 325, Fig. 1) and *D. sundanensis* (Bleeker, 1875-76 [1875]: Vol. 8, Plate 336, Fig. 4) the usually indistinct yellow stripes on the sides of the body of *N. furcosus* are much exaggerated.

The holotype of *Nemipterus worcesteri* Everman and Seale also was examined and is identical to *N. furcosus*, except that it has a wide deep black band completely encircling the caudal peduncle. Such a band has not been seen in any other *Nemipterus* specimens examined and may be an artefact of preservation, perhaps due to leaching of pigment or dye from an identification label tied around the peduncle.

Distribution

Nemipterus furcosus is widely distributed throughout the tropical West Pacific from southern Japan to north eastern Australia. In the Indian Ocean it has been recorded from the Gulf of Mannar (Rao and Rao, 1986, as *N. peronii*), Sri Lanka (type locality), and the Andaman Sea southwards through the Strait of Malacca to north western Australia. *Nemipterus furcosus* occurs in depths of 8-80 m.

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